Retrospective Analysis Determining Variables Associated with HIV Testing in Hepatitis C Virus (HCV)-Infected Patients by <u>Department of Veterans Affairs (VA)</u> Health Care Providers

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Introduction

Death rates from opportunistic infections in HIV-infected patients have significantly declined since the introduction of highly active antiretroviral therapy (HAART). Since then, a new focus on morbidity and mortality related to HCV infection and related liver disease has emerged.(1) The interaction between HIV and HCV influences the diagnosis, evaluation, and management of these patients.(1) Screening HCV patients for HIV infection is important for HIV treatment and prevention, and for HCV care. Given similarities in transmission, HCV patients are essentially all at risk for HIV. Among HIV-infected individuals in the United States, up to 30% are concomitantly infected with HCV, and even greater rates of coinfection (80-90%) are observed among intravenous drug users and hemophiliacs.(1-4) HCV-infected patients display accelerated rates of liver disease when HIV-associated immunodeficiency progresses (CD4<200).(2,3) As compared to HCV monoinfected individuals, HIV/HCV-coinfected patients have a lower spontaneous resolution rate following acute infection (15-30% vs. 5-10%) and thus a greater likelihood for chronic disease.(5) Evidence indicates that the time between HCV acquisition and the development of cirrhosis is significantly shorter in the coinfected population.(1,2) Within 15-20 years of initial HCV infection, 15-20% of HIV-coinfected patients develop cirrhosis compared with 2-6% of HIV-negative patients.(1,2)

Individuals who know their HIV infection status can take appropriate steps in prevention. Thus the timely diagnosis of HIV infection has important individual and public health implications. Data from the VA's national registries of HIV and HCV infection demonstrate that screening for HIV among HCV patients is far from universal (unpublished data). Furthermore, little is known about providers' behavior in screening HCV patients for HIV.

Results

The results are based on a retrospective cross-sectional study of HCV-infected veterans identified at VA Connecticut Health Care System (West Haven, CT) in the period between September 1, 2003 and June 30, 2004 using the local HCV registry that contains data on patients with positive anti-HCV test or a hepatitis C diagnosis. Data were then cross-referenced with the VA Computerized Patient Record System (CPRS) to confirm HCV infection based on serology or provider note documentation. Those patients without serologic or documented evidence of HCV infection were excluded. For identified HCV-infected veterans, variables (*demographics, provider-type, risk factors for HCV infection,* and *behavioral characteristics*) potentially associated with HIV testing, and HIV seropositivity were collected from CPRS.

Variables were analyzed using χ^2 analyses to determine differences among the HIV-tested versus non-HIV-tested HCV-infected veterans. T-test was used to analyze continuous variables. Stepwise logistic regression was used to assess the relationship between the presence of multiple variable associations and HIV testing and seropositivity.

235 hepatitis C virus (HCV)-infected subjects were identified; their median age was 52, 95% were male, and 64% were Caucasian. Only 103 (44%) were ever tested for HIV. Compared with untested patients, HIV-tested subjects were younger (median age 51 vs. 55, p<.001), less likely to be Caucasian (60% vs. 81%, p=.001), more likely to have documented risk factors (90% vs. 55%, p<.001), to have a history of injection drug use (58% vs. 34%, p<.001), or to be active substance users (49% vs. 26%, p<.001). Independent predictive determinants of HIV testing using stepwise logistic regression were age, documented HCV risk factors, and non-white race.

10 subjects had positive HIV tests (all determined before diagnosis of HCV infection). Compared to those who tested negative, subjects who tested positive were more likely of non-white race (p=.003). The

presence of IDU history or alternate risk factors were not significantly associated with testing positive for HIV

Summary

At a single VA facility, fewer than half of HCV-infected patients had ever been tested for HIV coinfection. This lack of testing has significant potential consequences. Although HIV testing was associated with documented HCV risk factors, non-Caucasian race, and younger age, many patients with obvious risk factors for HIV-infection were not tested. The influence of known risk factors and active substance abuse on HIV testing practices is understandable but may not accurately predict patients at risk for HIV. Strategies of HIV testing based on the presence of HCV infection rather than on perceptions of HIV risk are likely to be more effective for identifying undiagnosed HIV infection.

Table 1.			
N=235			
Patients tested for HIV (N=103)			
	Tested(n=103)	**Not tested(n=132)**	
Number with MD(n=166)	73(71%)	93(70%)	
Number with non-MD(n=68)	30(29%)	38(30%)	p=NS
Age *(median)*	51	55	p=<.001
Gender			
Male	96(93%)	128(97%)	
Female	7(7%)	4(3%)	p=NS
Race*			
White(N=150)	58(60%)	92(81%)	
Non-white(n=61)	39(40%)	22(19%)	p=.001
Risk Factors$			
>1documented(n=166)	93(90%)	73(55%)	
None documented(n=69)	10(10%)	59(45%)	p=<.001
IDU history(n=105)	60(58%)	45(34%)	
non-IDU history present or documented(n=130)	43(42%)	87(66%)	p=<.001
Active SA documented(n=77)	47(49%)	30(26%)	
no Active SA present or documented(n=135)	48(51%)	87(74%)	p=<.001

*Race unknown in 24 subjects

$ SA history not known in 23 subjects

Table 2.			
Number tested for HIV (N=103)	**Positive** 10(10%)	**Negative** 93(90%)	
Risk Factors* >1documented (n=92)	10(11%)	82(89%)	
None documented (n=11)	0	11(100%)	p=NS
IDU(n=60)	7(12%)	53(88%)	
non-IDU(n=44)	3(7%)	41(93%)	p=NS
Race* White(n=58)	1(2%)	57(98%)	
non-White(n=39)	8(21%)	31(79%)	p=.003

Race unknown in 6 subjects

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